In re Patent Application of:
PROCTOR, JR.
Serial No. **09/997,733**
Filing Date: **November 29, 2001**
_____/

In the Specification:

Please replace the paragraph beginning at page 2, line 11, with the following rewritten paragraph:

There still is no widely available satisfactory solution for providing low cost, broad geographical coverage, high speed access to the Internet, private intranets, and other networks using the existing wireless infrastructure. This situation is most likely an artifact of several unfortunate circumstances. For one, the typical manner of providing high speed data service in the business environment over the wireline network is not readily adaptable to the voice grade service available in most homes or offices. Such standard high speed data services also do not lend themselves well to efficient transmission over standard cellular wireless handsets. Furthermore, the existing cellular network was originally designed only to deliver voice services. As a result, the emphasis in present day digital wireless communication schemes lies with voice, although certain schemes such as CDMA do provide some measure of asymmetrical behavior for the accommodation of data transmission. For example, the data rate on an IS-95 forward traffic channel can be adjusted in increments from 1.2 kbps up to 9.6 kbps for so-called Rate Set 1 and in ~~for~~ increments from 1.8 kbps up to 14.4 kbps for Rate Set 2.

Please replace the paragraph beginning at page 3, line 8, with the following rewritten paragraph:

Although such networks were known at the time that cellular systems were originally deployed, for the most part, there is no provision for providing higher speed ISDN- or xDSL-grade data services over cellular network topologies. Unfortunately, in wireless environments, access to channels by multiple subscribers is expensive and there is competition for them. Whether the multiple access is provided by the traditional Frequency Division Multiple Access (FDMA) using analog modulation on a group of radio carriers, or by newer digital modulation schemes ~~the~~ that permit sharing of a radio carrier using Time Division Multiple Access (TDMA) or Code Division Multiple Access (CDMA), the nature of the radio spectrum is that it is a medium that is expected to be shared. This is quite dissimilar to the traditional environment for data transmission, in which the wireline medium is relatively inexpensive to obtain, and is therefore not typically intended to be shared.

Please replace the paragraph beginning at page 4, line 3, with the following rewritten paragraph:

In an office environment, the nature of most employees' computer work habits is typically to check a few web pages and then to do something else for an extended period of time, such as to access locally stored data or to even stop using the computer altogether. Therefore, even though such users may expect to remain connected to the Internet or private intranet continuously during an entire day, the actual overall nature of the need to support a required data transfer

activity to and from a particular subscriber unit is actually quite sporadic.

Please replace the paragraph beginning at page 5, line 21, with the following rewritten paragraph:

More recently, the cdma-2000 system provides a variable spreading factor to increase data rate rather than using additional long codes. Only a single long code is used, and different data ~~rate~~ rates are obtained by changing the chips per data bit or the length of the orthogonal code. Further, additional orthogonal codes within the code phases are employed.

Please replace the paragraph beginning at page 9, line 13, with the following rewritten paragraph:

The ISDN modem 120 converts data and voice signals between the terminal equipment 110 and 112 ~~to~~ to a format required by the standard ISDN "U" interface. The U interface is a reference point in ISDN systems that designates a point of the connection between the network termination (NT) and the telephone company.

Please replace the paragraph beginning at page 11, line 18, with the following rewritten paragraph:

In contrast to this, the present invention subdivides the available approximately 500 to 600 kbps data rate into a relatively large number of ~~subchannels~~

subchannels, as shown in FIG. 2, for example. In the illustrated example, the bandwidth is divided into sixty-four (64) subchannels 300, each providing an 8 kbps data rate. A given subchannel 300 is physically implemented by encoding a transmission with one of a number of different assignable pseudorandom codes. For example, the 64 subchannels 300 may be defined within a single CDMA RF carrier by using a different orthogonal code for each defined subchannel 300 for example, for the forward link.

Please replace the paragraph beginning at page 12, line 11, with the following rewritten paragraph:

A relatively large number, N, such as 1000 individual subscriber units are then supported by using a single long pseudonoise (PN) code in a particular way. First, a number, p, of code phases are selected from the available 2^{42-1} different long code phases. A given long code phase is unique to a particular subscriber unit and never changes. As will be explained, this is also true for supplemental code phases as well. The code p ~~phases~~ phase shifts are then used to provide p subchannels. Next, each of the p subchannels are further divided into s time slots. The time slotting is used only during the idle mode, and provides two advantages; it reduces the numbers of "maintenance" receivers in the base station, and it reduces the impact to reverse channel capacity by reducing transmit power and thus interference. Therefore, the maximum supportable number of supportable subscriber units, N, is p times s. During idle mode, use of the same PN code with different phases and time slots provides many

different subchannels with permits using a single rake receiver in the base station 104.

Please replace the paragraph beginning at page 12, line 24, with the following rewritten paragraph:

In the above mentioned channel allocation scheme, radio resources are expected to be allocated on an as-needed basis. However, consideration must also be given to the fact that normally, in order to set up a new CDMA channel, a given reverse link channel must be given time to acquire code phase lock at the receiver. The present invention avoids the need to wait for each channel to acquire code phase lock each time that it is set up by several mechanisms which are ~~describe~~ described more fully below. In general, the technique is to send a maintenance signal at a rate which is sufficient to maintain code phase lock for each subchannel even in the absence of data.

Please replace the paragraph beginning at page 15, line 5, with the following rewritten paragraph:

Prior to entering the Active state ~~405~~ 450 from Idle mode 400, the subscriber unit must make a request to the base station. If granted, (step 403-b), processing proceeds to step 451, and if not granted, processing proceeds to step 402. However, the subscriber unit knows that it is assigned code phase channels in a predetermined relationship to the code phase channel of its fundamental channel, i.e.,

$$P_{n+1} = \mathcal{F}\{P_o\}$$

where P_{n+1} is the code phase for the new channel (n+1), and P_o is the code phase assigned to the fundamental channel for the particular subscriber. Such a code phase relationship $\mathcal{F}$ may be, for example, to select uniformly from the available 2^{42} codes, every $2^{42}/2^{10}$'th or every 2^{32}'th code phase in a system which is supporting 1024 (2^{10}) reverse links, for a single subscriber.